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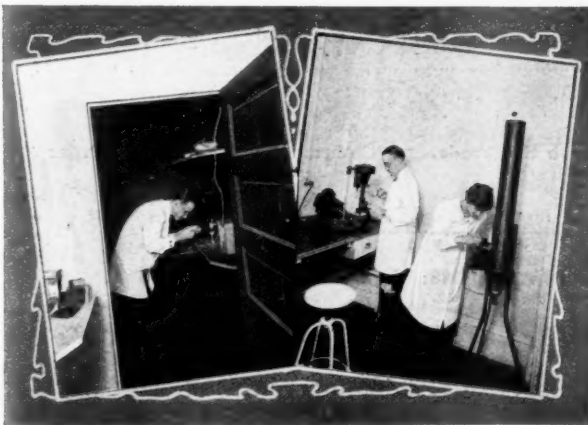
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Minnesota Medicine

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ORIGINAL ARTICLES

COLLES' FRACTURE.*

OWEN W. PARKER, M. D.,
Ely, Minn.

The treatment of fractures was, no doubt, one of the earliest surgical procedures, dating back to prehistoric medicine.

The studies of Egyptologists prove that many thousand of years ago bones were broken and tied up with splints much in the same way that we do today.

Strange as it may seem, the so-called Colles' fracture was not recognized until comparatively recently. Formerly all wrist injuries were considered as dislocations. Now we know that dislocation of the wrist is a surgical rarity.

In 1783, Pouteau, a Frenchman, first described a fracture of the lower end of the radius. His view of the subject did not seem to have attracted much attention, for during the thirty years following its publication only an occasional mention is made of even the possibility of such a lesion and this common injury was still called a dislocation. His description and arguments did not avail against the authority of the eminent French surgeons of that time.

In 1814, Colles, a distinguished Dublin surgeon, published his masterly paper, describing the fracture, in the *Edinburgh Medical Journal*. This was a clear and brief description of the lesion.

In 1820, Dupuytren established among the French the frequency of fracture of the carpal end of the radius and also proved the rarity of dislocation of the wrist. Sir Astley Cooper, in 1823, described in his book fracture of the lower end of the radius.

Velpeau, in 1842, called attention to the characteristic S-shaped deformity, which he likened to a dinner fork, or the so-called silver-fork deformity.

Thus we find a period of forty years from Pouteau's and Colles' descriptions before the true lesion was generally recognized. It was difficult to dislodge the old idea that the lesion was a dislocation.

In more recent years, Pileher, Roberts, Cotton, Codman, and others have made careful studies of the fracture and contributed valuable scientific knowledge on the subject. Dr. Murphy often talked on Colles' fracture in his clinics and emphatically impressed on his listeners the important facts in the treatment.

Colles' original description was of a fracture of the base of the radius, occurring as high as $1\frac{1}{2}$ inches above the carpal articular surface. On an average, however, it lies about $\frac{1}{2}$ to $\frac{3}{4}$ inches above the articular surface.

The anatomical parts entering into the formation of the wrist joint are the lower end of the radius and the under surface of the inter-articular fibrocartilage, which form together the receiving cavity, a transversely elliptical concave surface. The articular surfaces of the scaphoid, semi-lunar, and euneiform bones form together a smooth, convex surface, making the condyle which is received into the concavity above mentioned. The ulna does not form a part of the wrist joint, but connects with the radius by a separate articulation formed by the

*Read before the Annual Meeting of the Minnesota State Medical Association, St. Paul, October 11, 12, 1917.

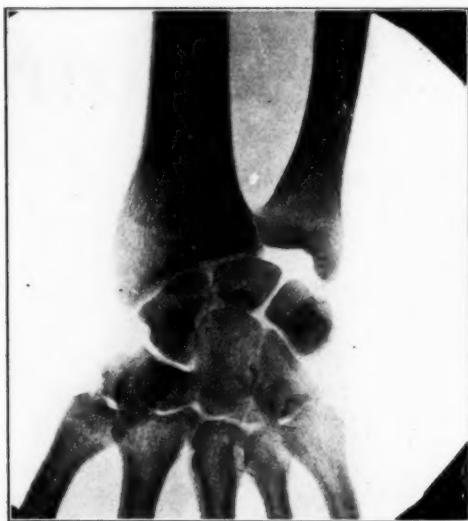


Figure 1.

Radiograph of normal wrist antero-posterior. Note the two rows of bone of the carpus, and the scaphoid and semi-lunar articulating directly with the base of the radius.

Note also that the ulna does not articulate with the wrist bones, but does articulate with the radius.

head of the ulna received into the sigmoid cavity at the inner side of the lower end of the radius.

The surfaces of the bones entering into the formation of the wrist joint are covered with cartilage and firmly held in apposition by four ligaments, the external lateral, internal lateral, anterior and posterior, together forming a capsule. At the lower extremity of the radius a prominent lip projects anteriorly into which is inserted the anterior radiocarpal ligament, whose fibers are continued for one-fourth inch or more above the articular margin. This ligament, though dense and strong, is sufficiently loose to permit considerable latitude of motion backwards of the carpus from the radius. The posterior radiocarpal ligament unites the bones together behind.

The anterior radiocarpal ligament is a very important anatomical structure in the production of Colles' fracture. It consists of three distinct sets of fibers or bands, the anterior surface of the scaphoid, semi-lunar, and cuneiform bones being the common point of origin. One set passes obliquely outward to be inserted into



Figure 2.

Radiograph lateral of wrist showing Colles' fracture with marked upward and backward displacement of lower fragment. Note the sharp jagged appearance anteriorly of the lower end of the upper fragment of the radius. Marked injury and irritation of the flexor tendons would be produced by it, especially if there were not complete reduction.

the styloid process and the adjoining anterior margin of the lower end of the radius. A second set passes obliquely in the opposite direction, and is inserted into the styloid process and anterior margin of the lower end of the ulna. The third set passes directly upward and is inserted into the greater part of the anterior margin of the lower end of the radius.

Colles' fracture is one of the most frequent fractures and also one of the most frequent surgical conditions that the practitioner is called upon to treat. One can appreciate its frequent occurrence when the manner in which it happens is considered. A fall and the force of the fall broken by an outstretched hand in hyperextension, never in flexion, are the usual conditions from which it results.

Out of the 2,521 fractures treated at Roosevelt Hospital in five years, 444 were Colles', it being the most frequent. In the great majority of cases the injury was caused by slipping, or tripping and falling on the floor or sidewalk. Other causes were falling from a ladder, falling downstairs, falling while skating, direct violence, being knocked down, warding off pres-

sure, hand twisted, and the kick-back of gasoline engine.

Considerable dispute has been waged as to the true mechanism of a Colles' fracture. The following two forces are considered by authorities to be the factors which together produce the fracture, namely:

First. The force of avulsion, i. e., the pull exerted by the anterior ligament on the lower end of the radius, especially the projecting anterior lip, by hyperextension. In hyperextension the bones of the carpus and hand act practically as one bone, so that a powerful leverage is brought to bear through the strong anterior ligament on the lower end of the radius. The expanded end of the radius with its cancellated structure makes it less able to stand a tearing force. This fact makes the radius, when submitted to a strain, weaker than the ligament, and consequently it breaks first.

Second. The force of impact, i. e., the force made up of the weight of the body and the velocity of a fall which has been sustained and which remains and is exerted after the force of avulsion has been expended. This is the so-called breaking strain received somewhat up-

ward and backward, and by most authorities is considered to be more important than the tearing strain or hyperflexion produced by the strong anterior ligament. By this force a wedge-like impact of the carpus or anatomical condyle against the articular cup of the base of the radius in an upward and backward direction is sustained. Very frequently also, if the momentum be great, the lower fragment is split and mushroomed and the fragments thrown out in various directions by the descent into it of the lower end of the upper fragment, after the breaking has been sustained. The amount of this impaction is a fair index of the force which the anatomical structures of the wrist have had to sustain.

The typical deformity of a Colles' fracture is the so-called silver-fork deformity, which consists of an upward and backward tilting of the lower fragment. The plane of the fracture is oblique from below upward and backward. With this upward and backward tilting of the lower fragment, the angle of the carpal articular surface of the radius is altered, so that in place of its facing normally slightly forward and downward to facilitate flexion of the wrist,



Figure 3.

Radiograph antero-posterior of wrist in a boy 14 years of age. Fracture produced by the same mechanism as a Colles' fracture. Colles' fracture is not so common in children, and a fracture of the radius higher up is the usual result. Sometimes the epiphysis is torn off. Note epiphyseal line and the fracture above it on the radius.



Figure 4.

Radiograph of Colles' fracture antero-posterior. Note the lateral displacement of the lower fragment and the separation of the ulna from its articulation with the radius at the sigmoid cavity. This lateral displacement is difficult to completely overcome.



FIGURE 5.

Radiograph showing (A) normal wrist, and (B) Colles' fracture in opposite wrist. Note upward and backward tilting of lower fragment, and contrast the difference in the planes of the articular surfaces of the radius in the normal and injured wrist. In the normal wrist the plane looks downward and forward, while in the injured wrist it looks upward and backward. We must overcome this difference in our reduction.

it faces upward and backward, thus producing the fork handle. The wrist, as it is pressed upwards and backwards, tends to carry with itself the lower fragment of the radius which has been torn or broken off, and the extent of the displacement is limited only by the resistance of the fibrous structures binding the wrist and by the amount of the force that the fall has produced.

In addition to the backward displacement of the lower fragment of the radius, there is also a lateral displacement toward the radial side, which makes the ulna stick out conspicuously. This displacement of the lower fragment is always toward the radial side of the wrist, never toward the ulnar. It is brought about by the carpal mass, that is the hand and wrist, after the breaking of the radius, slipping back in the direction of supination, the whole mass rotating around the head of the ulna because of the attachment of one of the bands of the anterior common ligament above mentioned to the styloid process of the ulna. Sometimes the strain is so great on this band of the ligament that the styloid process of the ulna is torn off. The lower end of the shaft of the radius appears to be thrust forward and this exaggerates the

appearance of lateral displacement of the lower fragment. There is, however, actual lateral displacement, as the X-ray shows, but the chief element is the supinating rotation which brings the lower fragment into lateral prominence.

As the lower fragment is displaced upwards and backwards by the force of avulsion and impact, it tends to strip up a layer of periosteum on the dorsal surface of the radius. This periosteum acts as a sort of ligament and interferes with the reduction of the fracture, because it remains tense after the fracturing force has been expended and the hand has again fallen forward, and tends to hold the entangled fragments together. Blood clots accumulate underneath it, since it is lifted up and thus leaves a space between it and the bone for blood to accumulate, and unless there is complete reduction, the space remains and new bone forms underneath it, filling up the blood-clot space, and thus it becomes a factor in the size and extent of the callus and therefore in the amount of subsequent deformity. Complete reduction



Figure 6.

Radiograph antero-posterior of an old healed Colles' fracture with recent fracture of the radius higher up. Note the shortening and widening of the base of the radius and the separation of the ulna from the articulation with the radius at the sigmoid cavity. Compare the length of ulna and radius, showing the decided shortening of radius. This is a well marked deformity following a Colles' fracture.

obliterates the space filled by blood clot and decreases the amount of callus, because it brings the periosteum back to its normal position. The appreciation of the presence and effect of this band of periosteum gives a hint of the first manipulation in reduction, for we must relax this band to overcome its action and to do that we must put the hand again in hyperextension, in other words, increase the deformity, and that is the first manipulation in the reduction of a Colles' fracture.

In all fractures we should never forget that the soft parts are often more seriously injured than the bone and often require more attention in treatment. This is frequently true in a Colles' fracture. The injuries that are sustained by the soft parts about the wrist joint, coincident with the bone lesion, are often extensive and severe. Ligaments are violently stretched and partially lacerated, and sometimes they are completely ruptured. The synovial sacks of the articulations are badly contused and often torn and filled with blood. Sheaths of tendons, both in front and behind, are injured. In front, the projection of the ragged edge of the upper fragment of the radius into the flexor tendons of the wrist may lacerate their sheaths and irritate the tendons; while behind, the stripping of the periosteum, and its later continued tension, involves in its results the extensor tendons. Effusions of blood and lymph into the anterior tendon sheaths and connective tissue spaces quickly produce a well-marked swelling on the front of the wrist above the anterior ligament, exaggerating the deformity produced by the bone displacement, and may simulate displacement even after the bones have been reduced. On the back of the wrist some swelling of a similar nature also forms. The effusions are firm and slowly absorbed and tend to provoke adhesions along the course of the tendons which they surround.

In a certain proportion of cases the impact is so great that a shortening of the radius is produced, which it is impossible to wholly overcome in the reduction. Some of the cancelli of the lower fragment are crushed and condensed and in some cases absorption of the osseous tissues later takes place, so that the bone is permanently shortened and the form of its lower



Figure 7.

Radiograph lateral of same case as Figure 6. Note the upward and backward tilting of the plane of the articular surface, and the marked shortening of the radius as compared to the ulna. Note the downward and forward protusion of the ulna. This shows the marked deformity typical of that produced by a Colles' fracture. Widening of the wrist, upward and backward tilting of the lower end of radius, prominence of the ulna, shortening of the radius, and the silver-fork handle appearance.

extremity is changed. Such changes in the contour of the bone are an unavoidable result of the accident itself and cannot be entirely prevented by treatment. However, our best efforts should be made to replace the bone, for the first principle in treatment is proper reduction. Any shortening of the radius will make the head of the ulna prominent, as the wrist and hand will fall to the radial side.

Pileher well stated the prominent characteristics of the deformity remaining in old Colles' fractures when he said: "Prominence of the head of the ulna with widening of the wrist and loss of the anterior projection of the articular tip of the radius and the imposition of a more or less backward inclination upon the plane of the carpal articular surface of the radius, are the most common permanent alterations in the anatomical configuration of the wrist as a result of Colles' fracture."

The characteristic silver-fork deformity proclaims the diagnosis often without further examination. The cardinal signs of fracture, crepitus and abnormal mobility, are often obscured and prevented by the impaction and resistance of untorn fibrous connecting bands.

As a final authority, however, the X-ray should always be used and radiographs taken both antero-posterior and lateral to correct or corroborate the diagnosis, and later to check up the position after reduction.

Colles' fracture should be reduced as quickly as possible after the injury, and general anaesthesia should be the rule. The reduction should be accomplished by very forcible manipulation. The functional result depends upon the proper replacement of the carpal articulating surface of the radius. The articulating surface of the normal radius with the carpus is tilted, so that the dorsal edge of the lower end of the radius is always distal to the palmar edge, and the plane of the articular surface, as stated before, looks forward and downward. This anatomical fact should always be borne in mind when dealing with a Colles' fracture. The reverse of this position occurs in the fracture.

One of the things that Doctor John B. Murphy liked to talk about in his clinics and "hammer in" was the treatment of Colles' fracture. You will remember that he used to talk as follows: "Now let us take up the proposition of the reduction of the most frequently maltreated fracture that occurs in the body, and one that unreduced gives the most evil results, a Colles' fracture. What is the correct method of effecting complete reduction? A reduction cannot be accomplished unless you first unlock the fragment. How do you accomplish this unlocking? Always with the patient anaesthetized. Place the thumb of the distal hand upon the posterior surface of the distal fragment, and the thumb of the proximal hand upon the nail of the distal thumb, and then increase the deformity almost to a right angle; unlock the fragment; push the lower fragment downward and flex it forward and at the same time swing the hand well around to the ulnar side to overcome the lateral displacement of the lower fragment, that also occurs to the radial side. With the reduction accomplished, dress the forearm by a few recurrent turns of a plaster

of Paris bandage placed upon the posterior surface so as to cover three-fifths of the circumference of the forearm. In Colles' fracture you do not have to retain the lower fragment by nailing except in very rare instances, because after complete reduction the lower fragment will remain in position, even if you dress the fracture merely in a sling. The great mistake and the cause of future trouble in the management of Colles' fracture is the effort made by the surgeon to reduce the fracture by the mere application of a splint. Splints were never intended to be used for the purpose of effecting a reduction of fractures."

Colles' fracture was of greater interest and was better understood by everyone after hearing one of these talks by Doctor Murphy.

To sum up: The cardinal points to be observed in the reduction of a Colles' fracture, are:

First. Anaesthetize the patient.

Second. Increase the deformity to a right angle or nearly so. This usually breaks up the impaction or entanglement of the fragments.

Third. Push the lower fragment down, flex it forward and swing it well to the ulnar side by strong traction and counter traction on the hand and wrist, and pull it into a position of marked ulnar abduction.

Fourth. At the same time supinate the upper fragment and slightly promote the lower fragment.

These forcible manipulations are done to overcome:

(a) The upward and backing tilting of the lower fragment;

(b) The displacement of the lower fragment to the radial side; and

(c) The supination of the lower fragment that occurs from the rotation around the head of the ulna.

In practice I use most often the plaster splint as described by Murphy, extending it posteriorly on the forearm from near the elbow down to the distal end of the metacarpal bones, leaving the fingers free. This splint can be removed in a few days and after that changed daily, if desired. I prefer to remove the splint frequently, as it allows one to carry out slight passive motion and gentle massage and the bathing of the skin in alcohol and the readjustment of the

pads to prevent pressure points. Two to three weeks is usually long enough to leave on a fixation dressing. One may use wooden splints if desired, in place of plaster. Regard must always be given to the fact that any pressure brought to bear upon the palmar or anterior surface of the carporadial region may bear upon the projecting anterior lip of the lower fragment and may crowd that fragment back to the plane of the shaft of the bone, even though complete reduction had been secured before the splints were applied. Antero-posterior pressure also tends to crowd the soft tissues in between the radius and ulna and forcing the ulna away, may renew and perpetuate its separation. The first indication, therefore, in the planning of a splint dressing, is the placing to the front of the forearm of a graduated pad of proper thickness, so placed that it will shield the anterior lip of the lower fragment from pressure. The lower edge of this pad should be about one-half inch above the carporadial articulation. It may be about three-eighths of an inch thick and extend upwards about two and a half to three inches. It should be wide enough to wrap part way around the ulna, so as to give support to that bone also, when the roller bandage is applied. A posterior light, straight, wooden splint, well padded, should then be applied and will meet all indications for splint support. It should not be wider than the wrist itself, so as not to interfere with the lateral support of the ulna. It should extend from the upper part of the forearm downward only to the heads of the metacarpal bones, so that the fingers shall not be confined by it. This splint, together with the graduated pad already mentioned to fill up the concavity of the radius and protect the anterior lip on the palmar side, will answer all indications for splints, if one prefers to use them rather than plaster Paris. The arm may then be hung in a narrow sling, supporting the arm on the ulnar side. This will assist also by the weight of the arm in pressing the ulna back into position. After the splints have been discarded, which is usually during the second or third week, active and passive movements of the wrist and fingers with massage should be practiced systematically until the normal function of the part has been restored. In all move-

ments and massage, pain should not be produced; gentleness is the rule. In general, the functions of the wrist and hand are usually so far restored, even in bad cases of deformity, that all the ordinary functions and uses of the wrist are restored. The greatest and most prolonged disability is due to adhesions in the tendon sheaths and amongst the periarticular fibrous structures, and sometimes to muscle degenerations caused by prolonged splint pressure and too long immobilization.

In conclusion, I would say that the one thing of greatest importance to do in the treatment of a Colles' fracture is to properly reduce it, and the next most important thing to do is not to abuse the use of splints.

The successful treatment of all fractures requires good judgment, common sense, constant attention to details, a knowledge of many methods, and the election of that method, which in the individual case will lead to a restoration of the form and function of the injured limb in the shortest possible time with the least danger and inconvenience to the patient.

DISCUSSION.

DR. A. R. COLVIN, St. Paul: The subject of Colles' fracture as presented by Dr. Parker is a very interesting one.

A clear understanding of the manner in which the deformity is produced in the typical Colles' fracture is very necessary because the unravelling of the deformity is the key-note to successful treatment.

König in his text book describes the production of deformity as follows:

The patient falls backwards, arresting his weight with the outstretched hand, the force transmitted from the palm of the hand through the anterior ligament of the wrist joint, the lower end of the upper fragment continuing to seek another point of support tends to seek the earth and becomes impacted in the lower spongy fragment, with the resulting familiar silver-fork deformity. The patient continuing to fall, two other items in the deformity are produced and the impaction takes place more on the outer side of the bone, and the hand thus becomes carried to the radial side, rotation through a vertical axis also occurs and the head of the ulna thus becomes rotated towards the palmar aspect of the forearm. The unravelling of this deformity becomes a now simple matter when we apply our force in reduction in the opposite directions to those which produced it.

Reduction must be such that at least the joint surface of the radius points directly forwards in the axis of the shaft. It is not always possible nor necessary

to have the fragments mathematically adjusted, but the proper direction of the joint surface is very important. After reduction the one important thing about the use of splints is that they be not employed over too long a period and that passive movement of the wrist be employed after the first few days. The splints must be arranged so that the fingers can be flexed actively from the first. Splints in suitable cases may be discarded after fourteen days.

In old people stiffness of the fingers and wrist joint occur very early and is very persistent if movement is not instituted early.

Separation of the lower epiphysis of the radius must always be thought of in young people having injuries at the wrist. Successful treatment of these injuries involves quite different principles than in the ordinary Colles' fracture. The deformity appears about the same, but there is no impaction, reduction is difficult, and is usually successfully accomplished by actively flexing the wrist joint and gliding the epiphysis into place. Retention of the reduced fragments is also difficult, but can always be maintained by keeping the hand actively flexed at the wrist.

As in fractures of all regions of the skeleton, recognition of the individual variety is important.

In the region of Colles' fracture the exactly opposite deformity may be produced, with the fracture line correspondingly different.

DR. ARCHIBALD MACLAREN, St. Paul: Just a word or two to impress one point Dr. Parker made. Within a week we have had referred to us about as bad a result from the treatment of a Colles' fracture as I have ever seen. This patient came to the office. The result was as bad as it could be, which only goes to prove that a Colles' fracture should always be reduced under an anesthetic. This had not been done in the case referred to.

The next point is, that we should never cover a fracture up so that we cannot see it. This fracture had been put in a plaster cast, and this was not done in the country but in a large Eastern metropolitan hospital, with as bad a result as I have ever seen, so bad that at the end of six or seven weeks it took great force with a Thomas wrench to rebreak the fracture, to exaggerate the angle to put it back and to get it anywhere near in its proper position.

This paper is very timely and we must not forget the importance of the points which Dr. Parker has so well presented to the society.

DR. ARTHUR W. IDE, Brainerd: I think the state society should be much interested in this particular fracture. In our locality we had a malpractice suit which was defended by the state organization during the last year. This case had several very interesting features. In the first place, the testimony in the case on the part of the defense showed that the position was good at the end of, I believe, five weeks. The position, according to the patient and the attendant, was very good at that time. No deformity was noticed at all. The splints were removed, and the patient left the doctor's care, and the next time the pa-

tient was seen there was a bad deformity. It was some two months later when the patient was seen with a bad result. The radius was shortened and there was angulation. The question was put to us on the witness stand as to whether this was properly treated or not, and I testified that it was possible for this deformity to occur after this lapse of time, assuming the case had been properly treated. No anesthetic was given, but that point did not enter into the trial. As I have said, the case was defended by the state society, and a verdict was obtained in the first trial for a thousand dollars against the doctor. It came to trial again, and the doctor was cleared.

I had my attention called to another case in my own practice in the last year of a similar occurrence. We had reduced a Colles' fracture, and we had a good position. The patient went out of town and was away for a month against the advice of the doctor, and when he returned he had a bad deformity. In that case it was not quite as long a time as in the first; but he evidently had disarranged his splint, had not taken proper care, and a deformity occurred. In our case the deformity was not quite as striking because sufficient time had not elapsed. In the other case it was evident that there was no union after the lapse of five weeks.

DR. H. B. SWEETSER, Minneapolis: I would like to ask Dr. Ide whether there was any evidence of syphilis in these two cases?

I had two cases that apparently entirely recovered, they went away from me, and when they came back there was non-union and deformity. In both of these cases there was syphilis. I have not seen cases of Colles' fracture where there was non-union in a normal individual. The impaction which always occurs, in my mind, prevents any non-union.

If the Colles' fracture is properly reduced, it does not require any splints. The difficulty is they are frequently not reduced at all. As Dr. MacLaren has said, an anesthetic is absolutely necessary to reduce them. If you do not unhinge the impaction you cannot reduce it, and you put on a splint and a plaster of Paris cast and you are much surprised afterwards to find there is deformity. If a Colles' fracture is properly reduced at the beginning, it does not require any splint at all practically, and if you allow motion and movement of the fingers from the first you do not have any stiffness afterwards.

DR. ARTHUR W. IDE, Brainerd: In these two cases the fractures were rather too high on the radius to classify them strictly as Colles' fracture. The term Colles' fracture is used to describe fractures near the wrist, and these cases would ordinarily be so classified.

In regard to the question of syphilis, the case I spoke of I did not see professionally and I do not know anything about it. I examined the arm in one case and there was no evidence, so far as my examination went, to show any signs of syphilis.

DR. V. J. HAWKINS, St. Paul: I rise to protest against the general statement that if these Colles'

fractures are properly reduced they remain in position. The attitude I wish to take is that you cannot always reduce them at once; that it is absolutely impossible always to get the fracture back in place at once, and that it is a bad impression to go out, that if this fracture is properly reduced it will always remain in position. If you can wait for about a week, and then put the patient under a general anesthetic, you can reduce every one of them; but there are cases from personal experience that I know cannot be reduced at first. The impaction in the thick cancellated end of bone are such that you cannot get the fracture in position at once. In a week's time you may be able to do so under a general anesthetic.

DR. ARNOLD SCHWYZER, St. Paul: I did not intend to discuss this paper, but I am prompted to do so after listening to the discussion, and especially to the remarks of Dr. Hawkins which we should not let go unchallenged, because the time when we can reduce a Colles' fracture is at the start. That is the time when we have no callus formation; we have no additional swelling to contend with, and I do not know of a case in my experience that could be reduced, if you just exactly follow what the doctor told us in his paper. Unlock first thoroughly and increase the abnormal position, and then bring the lower fragment not only downward, but take care of the different abnormal relations, swing it around, and make sufficient abduction. In some cases that you get very early you do not need to make use of narcosis. I have seen ideal results in cases of fracture which came into the office from the street. I did not do anything but simply used a little energetic traction. We must be absolutely sure that we have complete reduction, and we should not be content until we have done that. The hand must be self-supported in this position (indicating), so that it cannot flop back, and the patient must be able to open and close the hand.

Just as Dr. Sweetser has said, if the fracture is properly reduced, it does not need any splints for retention (only for protection). For many years I use a piece of felt that is placed in hot water and then moulded over the wrist and up to the elbow. That makes a beautiful splint which you can take off and put on again.

The first day we start motion, and after a few days we have some use of the hand. If reduction is properly done, the splint at best can only hold the fragments where we put them, but it does not correct them any further. For that reason the less fixation we use, the better.

DR. GEORGE EARL, St. Paul: About two months ago a lineman fell from the top of a pole and among other injuries the ulna was protruding, dislocated, and there was a Colles' fracture. It was impossible for me, with the hand in a straight position, to hold the Colles' fracture in place because there was also dislocation of the ulna with tearing of ligaments. By putting it up at an angle, I obtained a satisfactory position, showing that in some cases of Colles' fracture Dr. Colvin's point of an angle may be of great benefit.

DR. SAMUEL J. MIXTER, Boston, Mass.: There is one point that has not been touched upon in this discussion, and that is the fact that we may have a tremendous deformity and a perfect functional result. The cosmetic appearance may be very bad, but the use of the hand is just as good as ever. We see this in cases of neglected unrecognized Colles' fracture. I remember one in a friend of mine, a professional pianist. He had a fracture of the left wrist, with as bad a deformity as I have ever seen. He played the piano beautifully; he had perfect use of his hand. That is one reason I always advise patients with long standing fractures, old people especially, to let them alone. The breaking up of an old fracture, with a good deal of deformity, starts the process all over again, and I have seen many cases where a late refracture has produced the worst kind of symptoms in the way of tying up the hand, and the condition was very much worse than the first. I think in elderly people, who insist upon a refracture, it is much better to leave them alone with deformity if they have a fairly limber hand.

DR. OWEN W. PARKER, Ely (closing the discussion): I am very glad there has been such a free discussion, and I think it is a very good thing that we are beginning to think more of fractures. In fact, we are going to be forced to treat them because of the labor compensation laws which are being passed all over the country, and if we want to keep out of trouble we have got to know something about these fractures, or else leave these cases alone. The labor bureaus and insurance companies and corporations are going to demand that we do our very best, and that we know what we are doing. Bone splint work and the X-ray have brought fractures to our attention to such an extent that we are coming to hear more and more about fractures all the time, and I am glad personally to see so much interest manifested in the subject.

THE MILITARY SURGEON IN SERVICE.*

COL. HENRY GREENLEAF, U. S. M. C.,
Ft. Snelling, Minn.

I have listened with my best attention to the very interesting talk by your president, and I am reminded of the history of medicine and wonder somewhat why we don't go back to the methods of the genial Chino whose dictum was, fair enough to draw your pay and emoluments from the patient as long as he was well, while your pay stops from the man when he gets sick. And so I, in bearing this very excellent method in mind, am inclined to invite you to adopt the same method and come on into the army. Here our whole object is to keep the man well and not let him get sick, and then do our utmost to try and get him back to health. But indeed that carries with it some little effort after all; larger than is generally understood by some I think. But we do look at it from a different point of view; I don't know from my experience anything more troublesome, or anything that I have more anxiously tried to get off my mind, than a patient, for the reason that he is paying me nothing and causes some trouble while he lasts.

Not so long ago I attended, on the invitation of one of your prominent lady citizens, a Red Cross meeting in a big church in Minneapolis, where they were doing most excellent work. The minister was most encouraging in his ideas of the war, especially as it pertained to the medical profession. He said: "It is such a grand thing; we have so many splendid physicians at our beck and call, because when they need them they will come, and they are all trained in their profession and all they need to do when the thing is hot and the wounded are coming in, is to come,—and they will come; they will come, plenty of them." I did not dare expound my ideas in the matter, because of all the fool things I know of, it is the doctor when he comes. The hospital corps men are not so bad; you can whip them into shape; but when my Adjutant comes to me: "Dr. So-and-so is re-

porting for duty." "Where from?" "Right up here from——, somewhere in the state." "Oh, damn!" This sounds discouraging, but really what the Chinaman has to learn is quite a volume and I am frank to tell you that when I am called upon by the Surgeon-General to open up a course of instruction for these doctors, I am at a loss to know what to tell them. It is not always an easy matter to know how to instruct. It is not work that has been correlated in our minds, because most army doctors have had to learn from experience and not from teachers. In this connection I must say that the way to learn in the army is by experience and by our mistakes. There is always somebody higher up who has had enough experience to have learned a great many things about the so-called red tape, and I have finally come to the conclusion that the whole subject of sanitation or care of the soldier, and preventive medicine from the army point of view, is red tape. The man who has mastered red tape and the army methods is the good sanitarian. It sounds absurd but I hope to be able to explain that this is so. The higher you go in the ranks the more red tape there is. But one advances rapidly. At least that is so today. I have just passed through one grade in less than one month, but there are others who have been in it long enough to go through over the rocky road of red tape, and their only ambition is to get back at others that have gotten in their digs at them. Your mistakes in the army come back at you. Somebody always finds them out and corrects you. The physician's whole career is turned topsy-turvy. He can no longer bury his mistakes.

So this minister's idea of the requirements of the doctor coming into the service, is neither profitable to the army nor profitable to the doctor.

I don't know of any more disagreeable person than I myself have been to some of these good doctors in trying to be polite about their mistakes. I try to be good natured about them, but it is true that the average man who has not been in the army is surely careless about his papers, until after a while he will sign anything put before him, for whatever purpose it may be. Perhaps it may be because there is such an awful lot of them (papers, not doctors).

*Address before the Southern Minnesota Medical Association, Mankato, Nov. 26, 1917.

Therefore, I want to give first a little word of advice to those of you who are coming into the service, and I have an idea that there are more of you who are coming in than really realize it; the ones who come in now have the best chance. Incidentally, there are a lot of young men with ambition who are going to make great success at practice right now and can't spare the time. I honestly believe however, that the young men without too heavy family ties, and those who have wives who would be glad to have them take a vacation for a while, would do well to hurry on in because we need you. There is no doubt of that. I am going to tell you another word about this fighting proposition. Don't throw up your offices right away; go back to work and forget about the army until the call comes. After they have told you that you have passed and that you will be a commissioned officer, don't say anything about it. Don't tell your friends, for they will say, "Why don't you get on your uniform and go to war?" Remember, the Surgeon-General has a little task of his own in Washington. He has an enormous job and has to wait until something happens, until your papers come through, because you are only one of many. It is again the question of paper, so we want you to hear about it. Say nothing, but get as many patients as you can, and keep them coming. Live for the future when you can look upon the patient as one of those nuisances without a dollar attached. Sooner or later they will want you, but they cannot take you at once. I have a good many letters to the effect that "I have given up my lease, and have not been called," etc. I have a letter from the Surgeon-General, also, saying that that is a very unwise thing to do.

I am supposed to say something about the medical man in the service. I have never known anything else except in the service. I was born in the army, am the son of a medical man in the army, and have seen the medical department go through a very remarkable transformation. In the early days as I remember them, the medical department consisted of only the hospital stewards, some doctors, and such of the men as the line of the army cared to spare by detail, and this obtained even after the medical part of our army in the Civil War had de-

vised and put into operation the first organized military medical service of the world, on which lines all present military medical organizations are based, but after the uses for the army on a great scale had gone out of existence we began to settle back into the humdrum of frontier service. This gave way in 1888 to an organized hospital corps of which my father was really the founder. He got through Congress the authority to enlist hospital corps men as such, put us on a military basis and to again make a real military department out of us. Our men really belong to us. We are taxed with the care and control of them as are company officers. This was a real organization, so-called now a medical department, then a medical corps.

When it was first put to the test in the first campaign of any magnitude against the Sioux Indians, at the battle of "The Wounded Knee," it was a matter of great concern how to get out of a bad situation on account of the wounded, of which there were a large number. Colonel Hoff, Medical Corps, was surgeon of this outfit, a man now associated with the Surgeon-General and a very able administrator. This command, I hesitate to say command, in the face of the large forces of today, was probably about 2,000. Because of the resultant organized military formation of the medical part of the command, he was the first to report himself to his commander, General Tony Forsythe, as ready to move. He had his wounded under control on transportation that was his own, he had attended his wounded, dressed them, and was the first of the command who was really ready to start.

From this time on, until not such a long time after, when the corps was very well under organization, we were precipitated into the Spanish-American War, there was a great deal said for and against the medical department. We suffered most dearly because the eyes of the whole world were upon us as the caretakers of the sick and wounded of the American Army. When the army came back from Cuba there were probably none but were sick and a fair proportion were wounded. The number of men necessary to take care of the wounded and build hospitals was large, the number of men to do this was small. But as it turns out now, however, this may have been, nothing in the

world could have been of greater importance to our country or to the army in view of the present emergency, than that very disaster. We fortunately had a red-blooded man at the helm in our President Roosevelt who, after realizing the extent of the task involved in having the Philippines and other foreign possessions on our hands, determined that a whole lot of life must be shaken into the army. We knew it, too, but did not know how to shake it in. He subjected the older bureaucratic officers, known to the line as the "swivel chair brigade," to physical tests which they were not equal to, by inviting them to accompany him on walks and rides, invitations that they could not decline, with the results which he knew would follow. The chairs soon became vacated for a bunch of entirely different men who gave fresh ideas, new growth, and put in shape the present general staff. All of this had its bearing on the education of the army, and then, too, necessity, and the desire to learn proved great teachers and an impetus to the American medical man. We had the wonderful results, therefore, of the work of these splendid men whom everybody knows now, such as the work of Reed, Carrol and Agramonte in yellow fever, the splendid work of Gorgas and Wood in clearing Cuba of yellow fever through their exhaustive measures; the work of Vedder in clearing up the subject of beriberi in the Philippines; Bushnell on tuberculosis; Russell on typhoid, etc. All these accomplishments were outgrowths of tremendous epidemics and emergencies experienced, and the result was that the army at large, medical as well as the line of the army, were educated up to the necessity of the service. It had not been an uncommon thing to have men in command who were of high attainments along military lines—old men it is true—but old men who had gained their experience in earlier times, and who had learned many facts that had their bearing on military matters, under conditions as they obtained in Civil War times, and who were not convinced of the efficiency of modern sanitary suggestions, and the result was that action could not be had. They held the strings and it

was absurd to them for soldiers to have to use mosquito nets, for soldiers to have to be clean and neat in campaign. The soldier was encouraged to have long unkempt hair and an overgrown beard. A soldier was not a well hardened soldier who could not drink water collected in holes made by horses' hoofs. All of this had to be lived down, until, after experience, all were as well convinced and as well versed in these matters as the average sanitary man, and I can tell you that they have learned this lesson. They are convinced that water must be boiled, that when you are in the presence of mosquitoes, a net is a necessity if they are to prevent malaria. You must clear out flies. They are convinced by now that you must take your injections of inoculation against typhoid and paratyphoid, etc. Incidentally, in looking up this subject of typhoid fever I was really astonished to find that in 1898 there were 6,619 deaths alone from this disease, if you please,—not cases, but deaths—out of a little army of 150,000; that in 1916 there were more men than that by a good many—256,000 men including the militia and the regular army—and there were only eight cases of typhoid fever in the whole army throughout that year. A wonderful record, and this all crystallized means the education of the medical man and the education of the line officer along the lines that go to make efficiency; when we say that a thing goes to make efficiency it means that it makes what we understand by the hygienic laws of the army largely on the route of red tape.

Just a word here. When I say that red tape, or the conquering of it, is the most important work toward sanitation, I mean control of troops. I don't know of any one person in a command whose personal equation is more definitely felt than the medical officer, and I don't know any more perfect index of the medical officer's character who is detailed with a command than the condition of the outfit he is serving with. I was on duty as division surgeon with the Tenth Division on the Border, which was a division made up of troops from the Southern states,—Kentucky, the two Carolinas,

Georgia and Tennessee. The Tennessee troops incidentally, while in the Presidio during 1899, had left a name notorious for riotous doings because of the want of discipline or anything that indicated proper soldiery; their camping place still bears the name of "Tennessee Hollow." Now I may tell you that this Tenth Division and these Tennessee troops became a splendid body of well organized, well disciplined troops, true, with much still to be desired, becoming so by the heavy hand of a skillful division commander who emphatically pointed out to officers and men their mistakes; but it was a fact, too, that in going through these troops one could easily pick out, by their excellence, those who had a good surgeon.

You must learn the army methods. You not only must know that proper dietary is a necessity for healthy troops, but in order to get the proper dietary you have to know how, to accomplish it, how to set the commanding officer or company commander to rights. You are the man to point out to the company commander or post commander where he is at fault. It is one thing to go to the company and determine the fact that it is not having proper food; it is another thing to tell them how to get it. I have been with troops where you could take bills of fare and could find no criticism and you could not criticise the food, but if you went there the next week you could see a flaw, the next week a little bigger flaw, and the third week you would have the demonstration of the little quotation from the Bible that one of my best Catholic friends, a Jesuit Priest, read to me: "The same yesterday, today, and forever,"—lack of mere change, or variety, or a little bit of spice. So, too, the medical man must find out, or observe, when a man is slovenly in his clothes, when all the men of a company are not checked up to a proper method of holding themselves, know that the man is not getting his setting-up exercises or other drills with any degree of intelligence.

He must go into the tents. It is not one tent that is dirty, but all of them; and the reason is that soon the clean man finds that it is not worth while to keep up because nothing is done

to the dirty man. The dirty man is not made to bathe often. As to clothes, the company commander does not know how to fit them, and no one tells him. The men neglect their laundry and would rather spend their little something for laundry, on a little something they should better not have had, etc. And so if we go around picking out all these nicer little fine points we are helping the soldier get what he needs to make a good, able-bodied man, nothing more, for we can't make him too good even if we try. It means improving the soldier's surroundings and method of living by knowing the requirements of army regulations, which means knowing how, through popularly termed "red tape."

So gentlemen, when I tell you that these are the things you have to learn, and when I tell you that you don't learn them entirely from lectures, and that the very oldest text book you ever saw is a most amusing novel compared to these service manuals. So I am advising you, under the circumstances, to come in while the coming is good, get these things learned through your mistakes, and get your "cussing out" in diluted form instead of in a concentrated one, and when you have this little inkling you will find promotion waiting.

The government started out topside foremost to give promotions, as they thought them immediately deserving, and so they were,—but they have found that these men will get there anyhow; so they advise your coming in and demonstrating your ability. You can't down an Irishman or an American. Once in a while you can pull a German under the table, but he has the best chance in the world, if a good one,—an American. You have all kinds of samples of them in this section. In fact, I am convinced that the only ones that are not good are those who are paid for being bad, and they are so "dog-goned bad," they should be kicked out like skunks in the cellar,—though that is rather uncomplimentary to the skunks. As so much is being done, I know how every man feels; he wants to get in and I know how difficult and necessary it is that in many cases he cannot; he will when the time comes, and of course for

those others who can't, too old, infirm, etc., there is going to be lots of work in hospital positions near at hand. We have the very best brains in our medical world brought to bear to whip the medical department into shape, and they will use these men when the right time comes. In other words, the Surgeon-General, backed by the general staff, our splendid President, and those in charge, have called to the offices in Washington wonderful men, who are well fitted for big work, who are correlating and standardizing methods so that in our medical section we shall not depend on various ways of various minds; but these gentlemen, of whom some of the most striking examples, are the Doctors Mayo Brothers, Doctor Brackett of Boston, and Doctor Janeway of New York, and a good many others whose names appear over my desk, are selecting men known to them in their specialties and training them into standardized methods, very much as the aviators are doing with your new liberty machines. They are now picking out practical men to take positions in hospitals, in eye, ear, nose and throat, pathology, etc., according to their specialty as the case may be. They are placing chiefs of medical and surgical staffs and others in hospitals, and under these men, assistants, advisors, or internes. While they are doing this, the Surgeon-General is sending vast numbers of young men as fast as possible to do work along medical lines, to the Allies. And in turn, when we get started in active operations in France, there is practically no limit to the scope of the work.

I will mention in passing, the handling of the wounded by these medical men from the firing line, in order to leave fighting men on the line free to do their part. We find that these men must handle ambulance companies, hospital institutions, be prepared to take care of wounded close at hand or to move them. We find that nobody can do this work for us. One reason is because they have not the medical knowledge, —they have not lots of other things that medical men have.

I will only repeat my advice given earlier: come on in while the coming is good.

MEDICAL ADVISORY BOARDS.*

WILLIAM J. MAYO, M. D.,
Rochester, Minn.

Mr. President, Fellow Members of the Southern Minnesota Medical Association; Ladies and Gentlemen: I have been very much interested and edified by Col. Greenleaf's remarks to us junior medical officers, so badly tangled up in the red tape of which he has spoken. His is the first apparently adequate defense which I have ever heard of it, and I accept it because it has come so kindly from him and not because I understand the defense itself.

I want to speak to you briefly in regard to the Medical Advisory Boards. My brother and myself have had the honor to be appointed temporarily as Federal Aides on the staff of the Governor and the Adjutant General of the state in the formation of these medical advisory boards. You all know why these boards have been created. It is true, and we know it to be true, and in a way we are proud that it is true, that the medical examinations of the first draft were inadequate. There were many reasons for this inadequacy. First and foremost there was hurry. The nation wanted to get into the war quickly. We wished to make a showing, and rightfully. Therefore the men who were acting as medical examiners on local boards did not have time to make adequate examinations; but please notice that in their patriotism they gave the Government the benefit of the doubt. Every time they were in doubt as to the availability of a drafted man for service they said, "You had better go to war anyhow." The difficulty was that when these men went to camp, gave up their business in good faith because they had been accepted, that about 10 per cent. were sent home. In railroad fare it cost over a million dollars to take these men to camp and send them home; to say nothing of the injustice to the men who had been accepted and had gone in good faith and had given up their business to be sent home under such circumstances. Therefore, when the time came for the new draft, the administration

*Read before the Southern Minnesota Medical Association, Mankato Minn., Nov. 26th, 1917

rightly said that this thing must not occur again; there must be some way devised in which these men can be adequately examined, so that this injustice will not be done any of them again in the future.

The medical examination of the new draft will be improved. First, a local examining surgeon will not be expected to examine over thirty men in one day. When we think that more than 100 men were forced before a single examiner in one day in the previous draft we can understand why failure took place, and it is a wonder that the failure was not greater. There will be a sufficient number of what might be called advisory examiners on the local boards in proportions of thirty to each examiner. Whenever a local board will have to examine more than thirty men in one day, for each thirty after the first, there will be an additional examiner so that there will not be an overloading. Therefore, no board will be overworked. The advisory medical boards will be composed of from three to five men, and it is the desire of the War Department and of the Surgeon General's office to have as many of these boards in each state as can be blocked together with the facilities that are necessary for a careful examination.

There should be with each medical advisory board a man who has some considerable knowledge of the eye and ear, and of the X-ray, and

for all of those other specialties which we have learned through experience to be essential in making an examination which will show whether or not the applicant is a fit subject for the army. There will be a central state committee, and this committee will organize and supervise the medical advisory boards. These boards will have referred to them by local boards all doubtful cases. The government has very carefully guarded the interests of the drafted men who are to take these examinations. For instance, if any members of the local board are dissatisfied with the physical condition of the man who is being examined, they can send him to the medical advisory board. There will be an appeal officer who will represent the United States government and the Adjutant General's department of the state. If he is dissatisfied in any way with the examination or with the report of the conditions or facts, he can send this man to the Reserve Medical Board. If the man is dissatisfied he can himself appeal to the medical advisory board. Through these methods, it is believed, the inaccuracy of the medical examinations can be reduced to 1 per cent. instead of 10 per cent. The most prepared of any department of the war is the Surgeon General's office. The medical profession has responded nobly. Understand me, I am not here to make an appeal to the profession. An appeal is unnecessary; we are all loyal and anxious to help.



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EDITORIAL

MOBILIZING THE PROFESSION FOR WAR.

Until the entire medical profession of the United States, or at least those who are mentally and physically fit and within the age limit, are mobilized within the Medical Reserve Corps of the United States Army, not until then can we give to the Surgeon General that efficiency which he so badly needs in having a large body of Medical Officers upon whom to draw.

You may never be called; at the same time your joining the Medical Reserve Corps and placing your services at the command of your country clearly indicates the patriotism which the medical profession, as a whole, should evince and which we must manifest if we are to win the war.

Every doctor must realize that success depends upon a carefully selected and thoroughly trained body of medical officers. By careful selection, we mean the placing of a medical officer in a position where he is best fitted for the service, and only by having an immense corps or the entire profession mobilized upon a war basis, can we serve our country to the best possible advantage.

This mobilization of the entire profession should come from within the body itself, but every physician coming within the requirements of the service, as to age and physical fitness, should seriously consider this suggestion and not wait for complete mobilization but apply at once for a commission in the Medical Reserve Corps of the United States Army.

It is not only for the combatant forces that medical officers are required, but for sanitation, hospital camps, cantonments and in other departments where the health and life of the forces are dependent upon the medical officer.

We have within the profession a sufficient number of doctors to fully meet the requirements of the Surgeon General's Office whatever they might be, but to be of service, you must join the Medical Reserve Corps to enable you to meet the appeal which is now being made for a large and efficient Medical Reserve Corps upon which the Surgeon General may draw as requirements demand.

MINNEAPOLIS CLINICAL WEEK.

The Hennepin County Medical Society, Minneapolis, has created a clinical section composed of the clinical men of the Hennepin County Medical Society. The organization was effected Monday, January 21st. The officers elected were Dr. A. W. Abbott, chairman; Dr. W. A. Jones, vice-chairman; Dr. E. J. Huene-kens, secretary.

The purpose of the organization will be determined by the executive committee composed of the three men above mentioned with Dr. J. P. Schneider and Dr. J. G. Cross. From this executive committee other committees will be formed to take charge of the arrangements of the clinic, viz., an entertainment committee, a publicity committee, and a program committee.

This part of the organization was completed on the evening of January 25th.

The principal object of the section is to give a clinic throughout the week beginning April 8th, and extending to and including Friday, April 12th. It is planned to make the clinic week a very general one. Clinics in various sections of medicine and surgery will be given at the hospitals, the hours to be worked out and announced in the next issue of Minnesota Medicine. The clinic is for the purpose of attracting physicians and surgeons all over the Northwest, including Minnesota, North and South Dakota, Montana, and a part of Iowa and Wisconsin.

The business headquarters of the section will be at the Hennepin County Medical Society rooms in the Donaldson Building, on Seventh Street and Nicollet Avenue, to which all communications may be addressed. The Secretary will have stenographers and typists under him who will circularize the medical men. This early announcement is made in order that expected visitors may take note of the occasion, and also that they may be notified of this week of clinical importance. Return postal cards will be sent out later in order to get an estimate of the number of men who may be present. The clinics will take place at the time stated, and will be conducted whether there are ten men or one hundred visiting men.

Our readers are kindly asked to watch each issue of Minnesota Medicine for announcements in order to keep fully informed as to the program, which will be a scientific one, and one which the section hopes will be of very general interest.

REPORTING OF ACCIDENTS FROM LOCAL ANESTHETICS.

Elsewhere in these columns appears a letter from the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association asking the co-operation of the medical and dental professions in obtaining reports on accidents by local anesthetics.

It is self-evident that the prevention and treatment of such accidents must be based on full and conscientious reports of all abnormalities. It is notorious that the reports of such

accidents are published only exceptionally, for fear of unmerited censure of the anesthetist. The committee feels that in the plan suggested in its letter this objection has been avoided, so that reports, instead of inviting censure, will tend, on the contrary, to serve as a protection. It is hoped that the medical and dental professions will give this important measure their fullest co-operation.

OF GENERAL INTEREST

Dr. Harold O. Cooperman of Grand Forks, is moving to Minto, Minn., to take over the practice of Dr. Norton, who is about to remove to his old home in Rochester, Minn.

Dr. S. D. Henderson, who has been connected with Drs. Ewing in Kenmare, N. D., has severed his partnership with them to open offices in Lansford, where he will practice after the first of the year.

Dr. A. J. Large has opened a permanent office at 317 State Bank Building, La Crosse, Wis.

Dr. P. E. Stangl, who has been temporarily in charge of the Pilon Hospital, has returned to St. Cloud, Minn., and will make his permanent quarters there.

Dr. H. C. Otte is now located in Frazee, Minn., and is occupying rooms in the Kiene Building, formerly occupied by Dr. Rosenberg.

Dr. W. B. Whittenberg, of Detroit, has gone into partnership with his brother, Dr. D. E. Whittenberg, at Alexandria, Minn.

Dr. Shannon, of Barnum, has purchased an interest in the hospital at Crosby, Minn., and has moved there.

On January 19th, twenty-six physicians from the 31 counties connected with the District Board at Mankato, met with Major Snyder, Capt. Connolly and Lieut. Hoffman, and received instruction in examining drafted men.

Dr. P. L. Berge, of Brainerd, Minn., has been called to the colors. He will report to Fort Riley, January 23rd.

Dr. S. S. Shannon, formerly of Barnum, Minn., has located at Crosby. He is associated with Drs. B. A. Smith, E. J. Pengally and George Gilbert in the Miners Hospital.

The midwinter meeting of the Upper Mississippi Medical Society was held at Brainerd on January 8th. Dr. Thomas McDavitt, Secretary of the State Society, spoke of the work of the defense feature of the State Society.

The program was a symposium on obstetrics. Dr. W. A. Coventry, of Duluth, read a paper on "Toxemias of Pregnancy." The next meeting will be held at Wadena. This meeting will be devoted to venereal disease.

Dr. N. Linneman, of Duluth, was operated upon for gallstones on January 6th. He is making a good recovery.

IN MILITARY SERVICE

Ramsey County Medical Society.

The following members of this Society are on active military duty:

- Lt. John S. Abbott, 6th K. O. Y. L. I., B. E. F., France.
- Lt. Moses Barron, B. H. No. 26, Ft. McPherson, Ga.
- Capt. Walter T. Brodie, Camp Dodge, Iowa.
- Lt. Andrew Christiansen, F. H. C. No. 135, Camp Cody, Deming, N. M.
- Capt. Wallace Cole, Orth. Contingent, Red Cross, London.
- Major Paul B. Cook, Instructors' Headquarters, Ft. Riley, Kan.
- Lt. Edward J. Engberg, M. R. C., Camp Beau-rigard, Alexandria, La.
- Dr. A. R. Hall, R. A. M. C. 3, Whitehall Place, W. C. London.
- Lt. J. Felton Hammond, R. A. M. C.
- Capt. J. C. Harding, M. R. C., Ft. Riley, Kan.
- Lt. J. L. Martineau, F. H. C. No. 135, Camp Cody, Deming, N. M.
- Major E. A. Meyerding, F. H. No. 41, Ft. Riley, Kan.
- Lt. J. C. Michael, Base Hospital, Ft. Riley, Kan.
- Lt. N. G. Mortenson, F. H. C. No. 135, Camp Cody, Deming, N. M.
- Lt. R. F. McHugh, M. R. C., 136 Infantry, Camp Cody, Deming, N. M.
- Lt. W. P. O'Malley, Ambulance Co., Ft. Dodge.

- Lt. Justus Ohage, Jr., Camp Infirmary, Ft. Riley, Kan.
- Lt. J. J. Platt, M. C., 153 Infantry, Camp Beau-rigard, La.
- Lt. Louis Ramaley, M. O. T. C., Ft. Riley, Kan.
- Capt. F. J. Savage, M. O. R. C., Provisional Am-bulance Co., Camp Dodge, Iowa.
- Capt. Geo. W. Snyder, Field Hospital, Camp Dodge, Iowa.
- Capt. Olaf Sohlberg, Jr., Ambulance Corps, Minn. F. H. No. 135, Camp Cody, Deming, N. M.
- Capt. J. C. Staley, Post Hospital, Taliaferro Field No. 1, Ft. Worth.
- Major J. S. White, Sanitary Service, Camp Funston, Ft. Riley, Kan.
- Capt. H. B. Zimmermann, M. R. C., Minn. Unit No. 25, Ft. McPherson, Ga.

Wabasha County Medical Society.

The following members of this Society are holding commissions with the United States forces and are on active duty:

- Capt. W. B. Heagerty, Mazeppa.
- Lieut. D. S. Fleischhauer, Wabasha.
- Lieut. Cleon J. Gentzkow, Minneiska.

The following have accepted commissions but have not yet been called to active duty:

- Dr. W. F. Bleifuss, Elgin.
- Dr. W. W. Nauth, Minneiska.

Scott County Medical Society.

The following members of this Society are holding commissions with the United States forces and are on active duty:

- Dr. Geo. W. Snyder, Belle Plaine.
- Dr. W. J. Kucera, New Prague.

The following have accepted commissions but have not yet been called to active duty:

- Dr. William F. Maertz, New Prague.
- Dr. William H. Phillips, Jordan.

Carver County Medical Society.

The following members of this Society are holding commissions with the United States forces and are on active duty:

- Dr. John E. Soper, Norwood.
- Dr. P. J. Dempsey, Shakopee and Chaska.

NEW AND NON-OFFICIAL REMEDIES

During December, 1917, the following articles were accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies: Calco Chemical Company:

Chloramine-B (Calco)
Chloramine-T (Calco)
Dichloramine-T (Calco)
Halazone (Calco)

Dermatological Research Laboratories, Philadelphia Polyclinic:

Arsenobenzol (Dermatological Research Laboratories), 0.4 Gm. Ampoules.

Farbwerke-Hoechst Co.:

Novocaine

A. Klipstein and Co.:

Sterile Solution Coagulen-Ciba (3 per cent)
 1.5 Cc. Ampoules.

Sterile Solution Coagulen-Ciba (3 per cent)
 20 Cc. Ampoules.

Tablets Coagulen-Ciba, 0.5 Gm.

NEW AND NON-OFFICIAL REMEDIES.

Borcherdt's Malt Sugar.—A mixture containing approximately maltose, 87.40 per cent; dextrin, 4.35 per cent; protein, 4.40 per cent; ash, 1.90 per cent, and moisture, 1.95 per cent. It may be used when maltose is indicated in the feeding of infants, particularly in the treatment of constipation. The Borchardt Malt Extract Co., Chicago. (Jour. A. M. A., Dec. 1, 1917, p. 1875).

Tyramine-Roche.—A brand of tyramine hydrochloride complying with the standards of New and Non-official Remedies. The Hoffmann-LaRoche Chemical Works, New York. (Jour. A. M. A., Dec. 1, 1917, p. 1875).

Atophan.—A proprietary brand of phenylcinchoninic acid complying with the standards of the U. S. P., but melting between 208 and 212 C. For a description of the actions, uses and dosage, see New and Non-official Remedies under Phenylcinchoninic Acid and Phenylcinchoninic Acid Derivatives. Atophan is sold in the form of pure atophan and as atophan tablets 0.5 Gm. Schering and Glatz, New York. (Jour. A. M. A., Dec. 8, 1917, p. 1971).

Arsphenamine.—The Federal Trade Commission having adopted the name "arsphenamine" as the term to apply to 3-diamino-4-dihydroxy-1-arsenobenzene, first introduced as salvarsan, the Council on Pharmacy and Chemistry voted to adopt this abbreviated name in place of arsenphenolamine hydrochloride now in New and Non-official Remedies.

Arsenobenzol (Dermatological Research Laboratories).—A brand of arsphenamine. It has essentially the same actions, uses and dosage as salvarsan. It is supplied in ampoules containing, respectively,

0.4 Gm. and 0.6 Gm. Manufactured and sold by the Dermatological Research Laboratories, Philadelphia Polyclinic, Philadelphia, Pa.

Salvarsan.—A brand of arsphenamine. Supplied in 0.6 Gm. ampoules. Manufactured and sold by Farbwerke-Hoechst Co., New York.

Chloramine-T.—Sodium paratoluenesulphochloramide. It has the actions, uses, dosage and physical and chemical properties given in New and Non-official Remedies, 1917, for chlorazene.

Chloramine-T (Calco).—A brand of chloramine-T. Manufactured by the Calco Chemical Co., Bound Brook, N. J.

Novocaine.—The monohydrochloride of paraaminobenzoylethylamino-ethanol. Actions, uses and dosage, see New and Non-official Remedies, 1917, p. 31. Manufactured by Farbwerke-Hoechst Co., New York (Jour. A. M. A., Dec. 22, 1917, p. 2115).

PROPAGANDA FOR REFORM.

Some Misbranded Mineral Waters.—Shipments of the following bottled mineral waters were seized by the federal authorities, and on prosecution declared misbranded under the provisions of the U. S. Food and Drugs Act: (1) Baldwin Cayuga Mineral Water; (2) Bowden Lithia Water; (3) Carbonated Colfax Mineral Water; (4) Chippewa Natural Spring Water; (5) Crazy Mineral Water; (6) Crystal Lithium Springs Water; (7) Gray Mineral Water; (8) Henk Waukesha Mineral Spring Water; (9) Seawright Magnesian Lithia Water; (10) White Stone Lithia Water, and (11) Witter Springs Water. The "lithia" waters (Nos. 2, 6, 9 and 10) were in each case declared misbranded in that they did not contain sufficient lithium to warrant the term "lithia" in the name. A number (Nos. 1, 3, 5, 6 and 11) were declared adulterated in that they contained filthy or decomposed animal or vegetable substances of an excessive number of bacteria. Most of the waters (Nos. 1, 3, 4, 6, 7, 8, 9 and 10) were declared misbranded because the curative claims made for them were found unwarranted, false or fraudulent. (Jour. A. M. A., Dec. 1, 1917, p. 1901).

Salvarsan Manufacture Authorized in U. S.—The Federal Trade Commission has granted orders for licenses to three firms to manufacture and sell arsphenamine, the product heretofore known under the trade name of salvarsan, patent rights to which have been held by German subjects. Provided conditions of the license are accepted by the firms, the following will be authorized to make and sell arsphenamine: Dermatological Research Laboratories of Philadelphia; Takamine Laboratory, Inc., of New York, and Herman A. Metz Laboratory of New York. The license stipulates that the name arsphenamine be used in connection with the trade name, that the product must be submitted to the U. S. Public Health Service for examination before sale, and reserves the right to fix the price. (Jour. A. M. A., Dec. 8, 1917, p. 1989).

Anasarcin and Anedemin.—These are the twin nostrums of cardiac pseudotherapy. Cardiac disease with its resultant renal involvement is frequently encountered; and running as it does, a chronic course, it offers an almost ideal field of exploitation for the typical nostrum vender, who is more familiar with human credulity than with this preparation. Anedemin is said to consist of apocynum, strophanthus and squill with elder—an irrational mixture of three heart drugs with inert elder. Anasarcin has been stated to contain sourwood, elder and squill. Anasarcin is a dangerous remedy in the hands of the average clinician, and its use is at all times to be condemned. In view of the dangers attending the incautious use of any member of the digitalis group of drugs, it is impossible to condemn sufficiently the recommendation that the use of Anasarcin should be continued without cessation until all symptoms of dropsy have disappeared. In the present state of our knowledge of cardiac drugs, it is indisputable that digitalis and tincture of digitalis are best suited for the treatment of cardiac disease except in those few cases in which intramuscular or intravenous administration must be employed temporarily for immediate effect. (Jour. A. M. A., Dec. 8, 1917, p. 1992).

The Carrel-Dakin Wound Treatment.—From observations of the results of the treatment of wounds by the Carrel method, Wm. H. Welch is convinced that Carrel deserves credit for calling the attention of surgeons to the possibility of the sterilization of infected wounds by chemical means. The Carrel method actually accomplishes sterilization sufficiently for surgical purposes. The destruction of surface bacteria without injury to the body tissues is of primary importance. (Jour. A. M. A., Dec. 8, 1917, p. 1994).

Strandgard's T. B. Medicine.—The resident physician of a Canadian sanatorium states that the Dr. Strandgard's Medicine Company of Toronto, Canada, is attempting to sell its "consumption cure," called Strandgard's T. B. Medicine, to Canadian soldiers who are being treated at the sanatorium. (Jour. A. M. A., Dec. 15, 1917, p. 2060).

Pepto-Mangan.—Physicians having served the purpose of popularizing it, Pepto-Mangan (Gude) is now advertised in newspapers. In consideration of the established facts in regard to the absorption of iron and its utilization, all possible excuse for the therapeutic employment of Pepto-Mangan, in place of iron, has vanished. False claims regarding the efficiency of the preparation have been circulated by its promoters, and about two years ago the Council on Pharmacy and Chemistry reported that while the statements were no longer made, they had never been definitely admitted to be erroneous by the Breitenbach Company, and that Pepto-Mangan was then being exploited to the public indirectly. From a reading of the present advertisement in a medical journal, one can only suppose that this was intended to mislead physicians. The physician who prescribes Pepto-Mangan as a hematinic shows ignorance of the

most rudimentary facts of iron therapy, and the intelligent patient soon perceives his limitations. "Useful Drugs" contains a list of iron preparations that are suitable for all conditions that call for iron. William Hunter discusses the subject of anemia and its treatment at considerable length in "Index of Treatment," Edition 6, p. 17-37, and gives many prescriptions containing iron for use under different conditions. (Jour. A. M. A., Dec. 29, 1917, p. 2202).

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

MINNESOTA ACADEMY OF MEDICINE.

The regular meeting of the Academy was held at the Town and Country Club, Wednesday evening, January 9, 1918. In the absence of the president, the meeting was called to order by the vice president, Dr. Dennis. The minutes having already been published, their reading at this time was omitted.

No nominations were made.

For an hour and a half the Academy listened to reports of cases, Dr. Gustave Schwyzer reporting two; Dr. Ritchie, one; Dr. Owre, three; Dr. Little, five; Dr. Colvin, two; and Dr. Benjamin, one. There were others who came prepared to report but on account of the lateness of the hour deferred their presentation until another time.

The only formal paper of the evening was by Dr. Ernest T. F. Richards, on the subject of "Important Medical Problems Encountered in the European War Zone." Following its reading, several members asked the essayist for further information concerning some of the diseases referred to in his paper.

REPORTS OF CASES.

Dr. Ritchie exhibited two X-ray plates of the right kidney and described the case of a patient who for twenty-five years had complained of pain in the right side of the abdomen. One of the pictures showed the shadows in the exact location of the kidney; the other, a pyelogram, showed only one of the shadows within the thorium area. Heretofore the pyelogram had proved so satisfactory in differentiating the shadows in the pelvis of the kidney that little doubt was entertained of there being any question as to its reliability in this instance. The plate, however, showed only one shadow, while three others taken through the larger area of the side showed several shadows. These, later, were interpreted to be stones within the cortex, though they might have been in the gall bladder. The kidney was opened and thoroughly explored, but nothing was found that would account for the shadows. The lumbar incision was then closed and the abdomen opened through the right rectus. The gall bladder was found to be normal. The appendix, which was unusually long, was bound down upon the kidney, and it was in the end of the appendix that the mass making the shadows was found.

Dr. Gustave Schwyzer.—The first case reported was one of Vincent's angina. The patient was a woman twenty-seven years of age. Two days before Christmas her face became swollen over the lower jaw, especially on the right side. Swallowing became difficult. A week later she had an aching tooth extracted, following which deglutition became impossible. Pharynx remained normal and respiration continued undisturbed. The patient was seen by Dr. Schwyzer for the first time on the evening of January 3. The face was badly swollen about the lower jaw on both sides, but more on the right than on the left. She was unable to open the mouth; her breath was fetid. Temperature, 103.5; appearance septic. On account of the phlegmonous cellulitis beneath the chin it was thought possible that the affection might be Ludwig's instead of Vincent's angina. During the night the patient was given sodium salicylate, with plenty of water, by the rectum. Fluctuation below the chin on the right side could be made out. An incision was made, but no pus came away. The wound was closed. Then with a syringe and cannula, pus was searched for below the inferior maxilla on the right side. Finding pus, a small incision in the skin was made and the finger introduced. There followed a thick, yellowish-brown, fetid discharge. Smears from the tonsil as well as from the discharging pus, made while the patient was on the operating table, showed the spirillum of Vincent as well as the bacillus fusiformis, but no streptococci nor staphylococci. The patient made a rapid recovery.

A second case reported by Dr. Schwyzer was that of a man fifty-five years of age from whom a Murphy button was removed after remaining sixteen years in his stomach. About a year after undergoing a gastro-enterostomy he began vomiting, and with considerable regularity kept it up for fifteen years. A fluoroscopic examination gave the impression that this vomiting was due to an hour-glass stomach. Forty-eight hours after a barium meal half of the barium still remained in the stomach; and eight days later the descending colon still contained large quantities of the barium. The X-ray plates exhibited showed various parts of the button, especially the male portion and one loose spring with three spirals.

At operation, extensive adhesions about the stomach were loosened. The stomach was greatly distended with fluid, which previous to the operation could not be emptied. The pylorus apparently was closed. Toward the left side under the ribs could be felt a foreign body lying near the larger curvature of the stomach and, presumably, within the stomach. At a point about 50 cm. from the original anastomosis a new connection between the stomach and jejunum was made. Upon incising the stomach, portions of a Murphy button were found within the cavity and were easily removed. Whatever parts were yet remaining, should there be any, would pass, it was hoped, through the new opening between the stomach and the intestines. The patient recovered.

Dr. Owre reported the case of a man on whom he had difficulty in removing a stone by lithopaxy. After crushing the stone, he was unable to remove the closed lithotrite; something appeared to be included within its grasp besides the crushed stone. At first he thought it might be the mucous membrane of the bladder, but after satisfying himself that it could not be any portion of the viscus, he withdrew the instrument, bringing along with it a gum catheter. Upon examining the X-ray plate more closely, the catheter could be made out as it lay coiled within the stone. The report was accompanied by the radiograph.

Dr. Little reported a series of operations on the larynx, three of whom were performed for the removal of papillomatous growths, and two for the treatment of cancerous growths. Of the former, one case was that of a woman who had been hoarse for fourteen years. After opening the trachea the papilloma was cut off with scissors after first tying the isthmus of the thyroid. A tracheotomy tube was left in place for two days. The patient's voice has been much improved by the operation.

A second case of laryngeal papilloma was in a child four and one-half years who had had whooping cough when five months old, and pneumonia at one and one-half years. At the age of two and one-half she began to have spells of difficult breathing. A year or two later she was operated on by a nose and throat specialist through a laryngoscope, but without benefit. Three months later, a tracheotomy was performed to relieve a sudden and severe choking spell. The tube was left in for several months, resulting in an infection and ulceration of the larynx. When seen by Dr. Little for the first time, her temperature was 104 degrees. In this case practically all that was done was to remove the tube. Within five days the child could breathe easily through the mouth and has continued to do so for more than two years.

A third case was that of a child still younger. Its mother states that the baby was always hoarse, never crying out loud after it was four and one-half months old. A specialist diagnosed a papilloma of the larynx in September, 1917, and recommended operation; but the child contracted whooping cough soon afterward and it was not until the latter part of December that the patient was seen by Dr. Little. At that time there developed a serious cyanosis, and the baby was brought to Minneapolis, the trachea opened and a tube introduced. A week later the larynx was opened and the papilloma removed.

Of the carcinomatous growths, one was that of a man sixty-five years of age. The larynx and trachea were opened under novocain and 50 milligrams of radium secured in place with a piece of rubber glove. This was left applied for twelve hours, after which the wound was closed with catgut. A little less than two months afterward the larynx was again opened. This time the radium was screened with a rubber tube and secured in place by linen stitches—one on each end of the tube. After twelve hours the radium

was removed and the trachea closed. Examined eight months later, no evidence of carcinoma could be found, but the scar left in the larynx interfered with breathing, so much so that it was necessary to reintroduce a tracheal tube which at the present time, one year later, he is still wearing.

The other case was that of a man forty-five years of age. About a year before operation he became suddenly hoarse after singing. He had consulted Dr. J. A. Watson and been operated on by him the month before. Referred to Dr. Little, the larynx was opened under cocaine, and 50 milligrams of radium, without screening, applied for nine and one-half hours. A month later the larynx was again opened (this time under cocaine,) and 50 milligrams of radium, screened, allowed to remain over the cancerous growth for eight and one-half hours. The patient died the following fall.

Dr. Benjamin reported the following: A man forty-seven years of age had had pain for a week in the right inguinal region. The pain was accompanied by vomiting. There was also a hernia. On a Thursday the patient went to work as usual, but was obliged to return home on account of vomiting and pain. The pulse was increased in frequency and a mass could be felt in the inguinal canal. Later the vomiting and pain ceased; the abdomen became soft. The diagnosis made at this time was that of hernia plus gastric ulcer. Operation was performed the following morning. Under local anesthesia the hernia was freed and the bowel returned to the abdomen. At this point in the operation other things began to appear. Upon opening the sac a bloody serum escaped, and on extending the incision, which was done under nitrous oxide, there was an escape of mucus, gas, and stomach content. An opening in the stomach near the pylorus was found. The perforation occurred, as nearly as could be estimated, twenty-four hours before the time of operation. The patient died the same evening.

Thirty-two members and three visitors were in attendance.
F. E. LEAVITT, Secretary.

RED RIVER VALLEY MEDICAL SOCIETY.

At the December, 1917, meeting of the Red River Valley Medical Society the following officers were elected:

President, H. W. Froehlich, M. D., Thief River Falls, Minn.

Vice President, F. M. Dryden, M. D., Crookston, Minn.

Secretary-Treasurer, Ralph L. Kirsch, M. D., Crookston, Minn.

Counselor, C. E. Dampier, M. D., Crookston, Minn.

Delegate, G. S. Wattam, M. D., Warren, Minn.

Delegate, H. E. Nelson, M. D., Crookston, Minn.

Censors, A. H. Kahala, M. D., Crookston, Minn.;

O. H. Olson, M. D., Erskine, Minn.; O. H. Melby, M. D., Thief River Falls, Minn.

Alternate, J. S. Kjelland, M. D., Crookston, Minn.

Alternate, W. H. Hollands, M. D., Fisher, Minn.

UPPER MISSISSIPPI MEDICAL SOCIETY.

The Annual meeting of the Upper Mississippi Medical Society, January 8, 1918, held at Brainerd, Minn.

PROGRAM.

I.

"Presentation of the Head other than Occiput Anterior."

Dr. L. A. Davis

Wadena

II.

"A Brief Summary of One Thousand Consecutive Cases of Confinement."

Dr. F. H. Knickerbocker

Staples

III.

"Toxemia of Pregnancy."

Dr. W. A. Coventry

Duluth

IV.

"A Case of Measles with Parturition."

Dr. L. M. Roberts

Little Falls

V.

"Ectopic Gestation."

Dr. J. A. Thabes

Brainerd

CORRESPONDENCE

REPORTING OF ACCIDENTS FROM LOCAL ANESTHETICS.

To the Editor: The Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association has undertaken a study of the accidents following the clinical use of local anesthetics, especially those following ordinary therapeutic doses. It is hoped that this study may lead to a better understanding of the cause of such accidents, and consequently to methods of avoiding them, or, at least, of treating them successfully when they occur.

It is becoming apparent that several of the local anesthetics, if not all of those in general use, are prone to cause death or symptoms of severe poisoning in a small percentage of those cases in which the dose used has been hitherto considered quite safe.

The infrequent occurrence of these accidents and their production by relatively small doses point to a peculiar hypersensitiveness on the part of those in whom the accidents occur. The data necessary for a study of these accidents are at present wholly insufficient, especially since the symptoms described in most of the cases are quite different from those commonly observed in animals even after the administration of toxic, but not fatal, doses.

Such accidents are seldom reported in detail in the medical literature, partly because physicians and dentists fear that they may be held to blame should they report them, partly, perhaps, because they have failed to appreciate the importance of the matter from the standpoint of the protection of the public.

It is evident that a broader view should prevail, and that physicians should be informed regarding the conditions under which such accidents occur in order that they may be avoided. It is also evident that the

best protection against such unjust accusations, and the best means of preventing such accidents consist in the publication of careful detailed records when they have occurred, with the attending circumstances. These should be reported in the medical or dental journals when possible; but when, for any reason, this seems undesirable, a confidential report may be filed with Dr. R. A. Hatcher, 414 East Twenty-Sixth Street, New York City, who has been appointed by the committee to collect this information.

If desired, such reports will be considered strictly confidential so far as the name of the patient and that of the medical attendant are concerned and such information will be used solely as a means of studying the problem of toxicity of this class of agents, unless permission is given to use the name.

All available facts, both public and private, should be included in these reports, but the following data are especially to be desired in those cases in which more detailed reports cannot be made:

The age, sex, and general history of the patient should be given in as great detail as possible. The state of the nervous system appears to be of especial importance. The dosage employed should be stated as accurately as possible; also the concentration of the solution employed, the site of the injection (whether intramuscular, perineural or strictly subcutaneous), and whether applied to the mouth, nose, or other part of the body. The possibility of an injection having been made into a small vein during intramuscular injection or into the gums should be considered. In such cases the action begins almost at once, that is, within a few seconds.

The previous condition of the heart and respiration should be reported if possible; and, of course, the effects of the drug on the heart and respiration, as well as the duration of the symptoms, should be recorded. If antidotes are employed, their nature and dosage should be stated, together with the character and time of appearance of the effects induced by the antidotes. It is important to state whether antidotes were administered orally, or by subcutaneous, intramuscular or intravenous injection, and the concentration in which such antidotes were used.

While such detailed information, together with any other available data, are desirable, it is not to be understood that the inability to supply such details should prevent the publication of reports of poisoning, however meager the data, so long as accuracy is observed.

The committee urges on all anesthetists, surgeons, physicians and dentists, the making of such reports as a public duty; it asks that they read this appeal with especial attention of the character of observations desired.

TORALD SOLLMANN, Chairman,
R. A. HATCHER, Special Referee,

Therapeutic Research Committee of the Council on
Pharmacy and Chemistry of the American Medical
Association.

PROGRESS IN MEDICINE AND SURGERY

STUDIES OF THE CEREBROSPINAL FLUID IN ACUTE ANTERIOR POLIOMYELITIS: Kolmer, Freese, Matsunami and Meine (American Journal Medical Sciences, Vol. CLIV, No. 5), report the result of their spinal fluid examinations of poliomyelitis, during the epidemic of the summer of 1916 in Philadelphia. There is a brief review of the literature. The authors base their report on 868 specimens of spinal fluid. Only five from 316 fluids were turbid; the remaining were water clear. The five turbid spinal fluids occurred from cases on the fourth to the sixth day after the onset of paralysis, and gave a total cell count of over 200 cells per cu. mm. In about ten per cent a small fibrin coagulum occurred. No xanthochromia or excessive fibrin formation occurred in a single case. In 787 cases, a cell count was made of the spinal fluid, of which 609 cases showed an increased cell count. About eighty per cent of these gave a cell count of less than 100 per cu. mm. In 5 cases examined during the preparalytic stage, the cell count varied from 20 to 100 cells. The increased number of cells persisted in the spinal fluid for at least three weeks when the total number of cells gradually approached normal. A differential count was made in 87 fluids, all after the onset of the paralysis. The small lymphocyte was most frequently observed; rarely the large mononuclear leucocyte was found. Polymorphonuclear leucocytes predominated in less than 1 per cent of the fluids examined. This was probably due to the fact that the fluid was taken from cases after the development of the paralysis. The globulin test was made in 868 fluids and was found positive in 33 per cent of the cases with the Noguchi method. In 38 cases a colloidal gold reaction was made. In 18 cases, examined at intervals of two to twelve days after the onset of paralysis, no color change was observed. In 10 cases, a reaction was observed in the luetic zone, while in 6 cases the maximum color changes occurred in the meningitic zone. All fluids gave negative Wassermann reactions. In 78 cases, Mayerhofer's potassium permanganate reduction reaction was done. In 32 cases, the index was above 2.4 per cent, showing that 41 per cent of the spinal fluids in the first three weeks of the infection contain an increased protein content. In 779 spinal fluids a qualitative Fehling's test was made and found positive, although in 86 cases larger quantities of spinal fluid than usual were required. In 65 cases, the Weil-Kafka hemolysin reaction was done and found positive in the spinal fluid in 66 per cent, while the fluids of 11 control persons were absolutely negative.

The results of the various tests are given in detail. In their summary, the authors believe that a definite and absolute diagnostic criterion or laboratory test with the cerebro-spinal fluid in acute anterior poliomyelitis has not been discovered. E. M. HAMMFS.

CHRONIC ASPIRINISM: Stiell (Practitioner, Vol. 99, No. 3), reports a case of a lady aged 50 suffering for 13 years from rheumatoid arthritis who took aspirin gr x t. i. d. for seven years. In the seventh year of this medication the first sign of aspirin poisoning occurred in the form of "an intractable simple conjunctivitis" with hyperaemia and lacrymation. The aspirin was discontinued but recurrence of the rheumatoid pains forced the patient to resume the medication. A severe urticaria developed assuming in part the character of an acute circumscribed edema. The edema affected severely the tongue so that dysphagia became marked and the eyes were closed by the palpebral edema. The urine gave an intense bluish violet reaction when tested with liquor ferri perchlor., but the exact percentage of salicylic acid was not estimated. Vomiting and diarrhoea were also present. Withdrawal of the aspirin resulted in recovery in 7 weeks.

C. B. DRAKE.

THE ETIOLOGY AND TREATMENT OF IRITIS: Mr. H. Dickinson (Arch. of Ophth., Vol. XLVI, No. 6, November, 1917), President of the Ophthalmological Section of the Royal Society of Medicine, in opening the discussion on the etiology and treatment of iritis stated that upon analysis of 200 cases of iritis occurring in his practice he found the cause of such a condition to be proportioned as follows: syphilis, 6 per cent; gonorrhea, 12 per cent; pyorrhea, 37 per cent; tuberculosis, 11 per cent; general affections, 8.5 per cent; other causes, 25.5 per cent. The hospital figures for syphilis would in all probability show a higher percentage than 6 per cent although recent methods for treating that disease would probably place lues lowest as a causative factor. He believes that the percentage for gonorrhea is also low compared with hospital statistics, but recent knowledge of that disease resulting in the treatment of the genito-urinary tract, where the gonococcus is so apt to lurk, would largely prevent gonococcal iritis. He further believes that relapses in cases of iritis are largely due to pyorrhea. In tubercular cases, sex plays no part, being equally distributed in either one and should be treated along the same lines as tuberculosis elsewhere, together with local measures to subdue the inflammation and prevent closure of the pupil.

In 17 cases patient either had gout, diabetes, herpes of the fifth nerve, influenza or pneumonia; 10 had a septic focus on a mucous surface or cavity or upon the skin; 6 had diseased tonsils; 23 some affection of the alimentary tract, and 7 had trouble in the genito-urinary system. In one patient the iritis followed a contused injury of the globe, while another had iritis as a sequel of sympathetic ophthalmia. In 74 out of the 200 patients there was no discoverable cause other than pyorrhea. Upon the removal of defective teeth and stumps, rapid clearing up of the iritis resulted. In 22 other cases pyorrhea existed as a complication of other conditions.

PAUL D. BERRISFORD.

INFARCTION OF THE HEART SIMULATING ACUTE SURGICAL ABDOMINAL CONDITIONS: Samuel A. Levine and Charles L. Tranter (American Journal of Medical Sciences, January, 1918), report two cases, one dying on the operating table, with autopsy findings in both cases.

Both autopsies showed infarction of the heart from a thrombus in the anterior coronary artery.

No other pathological changes were found in the other organs to explain the symptoms.

The authors state that while it has long been known that acute abdominal pain may occur in pneumonia, pericarditis, and in pleurisy, no mention of coronary thrombosis as a cause of acute abdominal conditions appears in the usual text of medicine and surgery and that there are but few cases reported in the literature.

Clifford Allbutt refers to a case of fatal thrombosis of the right coronary artery in which there was pain and collapse suggesting perforated gastric ulcer.

Case 1. Hardware clerk, age 39. Father died of angina pectoris. History negative up to one year ago when he commenced to have cramp-like pains over the heart, most severe when walking. Also cramp-like pains in calves of legs which came and went suddenly. These symptoms had a sudden onset and lasted three months and gradually disappeared.

Five days before admission began to have pains across the epigastrium which radiated towards both nipples. Vomited mucus and blood. Vomited repeatedly. Bowels moved only with enemata.

Physical examination on admission revealed a regular but weak heart action—no enlargement, no murmurs, basal tones faint. Pulse, 150. Blood pressure: systolic, 92; diastolic, 80.

Abdomen full and in the epigastrium extending to the umbilicus a distinct prominence. Tenderness and muscle spasm in this region. Dullness here fusing with liver dullness. Rectal temperature, 102° F. Leucocytes, 21,400. Blood, Wassermann negative.

Surgeons, in consultation, diagnosed an acute surgical abdominal condition, the possibilities being acute pancreatitis, acute gall-bladder, or perforated gastric ulcer.

The patient died on the operating table.

The autopsy showed congestion of the abdominal organs with an enlarged liver, extending a hand's breadth below the costal arch—otherwise abdomen negative.

Thoracic cavity negative except for free fluid and signs of congestion and edema in the lungs.

The heart was enlarged and weighed 570 grams; both sides dilated, particularly the right. The myocardium, especially that of the left ventricle appeared yellowish beneath a normal pericardium. Valves normal. Apices of right and left ventricles were filled with thrombi. Thrombosis of the wall of the left ventricle was very extensive, large thrombi being present around the papillary muscles of the left side. Sections through the myocardium showed

almost complete necrosis from extensive infarction. The coronary arteries were sclerotic, the anterior coronary being irregularly thickened and its lumen almost obliterated.

Microscopic section of the left ventricle showed definite abscess formation in the large areas of necrosis. Sections through the anterior coronary showed extreme arteriosclerosis, with great narrowing of the lumen and hyalinization and calcification of the wall.

The aorta showed extensive atheromatous degeneration. One small area of ulceration covered by a thin thrombus.

Case 2. A foreman in a riding school, age 59. Past history negative, except for dyspnea on going upstairs for several months. Four hours before admission taken with a sudden, sharp non-radiating pain in the upper abdomen. He perspired freely, felt nauseated and vomited frequently but no blood. No similar attacks.

Physical examination showed a scaphoid abdomen with an area of moderate tenderness in the epigastrium and extending towards the gall bladder. No liver edge felt. Apex beat of heart neither seen or felt. Heart enlarged to left, sounds distant and weak, no basal accentuations, no murmurs. Rate, 107. Pulse poor and low tension. Blood pressure: systolic, 106; diastolic, 80. Congestion and crackles, base of right lung. Temperature, 96.8° F.; leucocytes, 19,600—85 per cent. polymorphonuclear leucocytes. Urine showed hyaline and granular casts; trace of albumen and 2 per cent. sugar, and diacetic acid ++.

The surgeons in consultation suggested an acute perforation or inflammatory intra-abdominal condition, but delayed operation on account of the acidosis. Next day the temperature had risen to 100.4° F. Leucocytes, 19,900, and the indefinite tender mass in region of gall bladder was still present.

Thirty-six hours after admission the cardiac factor in the case began to be appreciated on account of the very slow pulse, and an electro-cardiogram revealed heart block. Patient died in a few hours, and the autopsy findings were essentially negative for abdominal pathology, but showed an hypertrophied and dilated heart with infarction.

The anterior coronary artery was occluded by a thrombus at the upper portion of the interventricular septum. (This probably accounts for the heart block). The posterior coronary free. At the apex of the heart were numerous fresh thrombi.

The difficulty in both these cases was the persistence of abdominal symptoms with signs of shock and collapse and leucocytosis and very little pointing to the heart as a cause. The helpful thing in retrospect was the previous history of anginal pains in one case and exertion dyspnea in the other.

CHARLES N. HENSEL.

THE ROENTGENOLOGIC DIAGNOSIS OF PRIMARY CARCINOMA OF THE LUNG: F. B. McMahon, M. D., and R. D. Carman, M. D. (The American Journal of Medical Sciences, Vol. CLV, No. 1, January, 1918), from a brief review of the literature, note that up to this time there have been 428 authentic case reports of primary carcinoma of the lung. The most complete and excellent monograph on the subject has been written by Adler, who collected 374 definite cases and several others which, though questionable, bore sufficient evidence to cause him to put them in a doubtful column.

The symptoms are variable and not diagnostic, though sometimes suggestive. The age incidence of the disease is similar to that of all malignancies. Males are more frequently affected. Cough is an early symptom; it is usually slight, but constant and distressing. Expectoration, if any, is moderate in amount; it consists chiefly of mucus, and at times may be blood stained. Hemoptysis is common, but the quantity of blood is small. Inspiratory dyspnea comes on early, is nearly always present, and is exaggerated by exertion. Hoarseness and change of voice from pressure paresis of one or both vocal cords is common. Pain is a prominent, but not early, symptom. It is associated with substernal pressure symptoms or pleural involvement. Pressure may give rise to dysphagia. Weight loss and weakness are pronounced and progressive. A rise of temperature of 0.5 degrees to 1 degree is usual; chills and sweats are rare. The infiltrative type runs a longer course than the miliary or mixed type.

The physical findings are such as would be expected in massive or patchy infiltration and consolidation of the lung from any cause. Pleural effusion may mask these signs; on aspiration the fluid may be a straw colored, blood stained, or darkly discolored. Engorgement of the veins of the anterior chest wall and edema of one or both arms may be present. Enlarged supraclavicular or axillary glands, are suggestive, and removal of such glands may aid the diagnosis.

In most instances the roentgen findings in primary carcinoma of the lungs are pathognomonic of the disease, and may be the first to suggest the exact nature of the pulmonary lesion. The areas of increased density, their size, shape, and position, are usually characteristic and aid in the clinical diagnosis more than most other signs. This does not imply that all other signs can be slighted or discarded, for it is by a careful collection and correlation of all the facts that a satisfactory differential diagnosis may best be established.

In the roentgen examination three types of the disease are recognizable: namely, the infiltrative, the miliary, and the mixed, which correspond to the gross pathological groupings. A striking feature in all types, and one of considerable diagnostic importance, is the absence of practically any increase in mediastinal density. The presence of extensive pleural involvement in primary carcinoma of the lung

renders the interpretation of the roentgenogram correspondingly more difficult, but not impossible. The presence of large pleural effusions tends to completely mask the roentgenographic picture and to conceal the underlying and principal pathological condition in the lung. A second roentgen examination is necessary after thoracentesis. Fortunately these latter two conditions rarely occur until the terminal stages of the disease.

In the stereoscopic study of the infiltrative type of primary carcinoma of the lung, the roentgenogram shows one or more areas of increased density along the roots of the larger bronchi. The shadows are homogeneous or partially mottled. The borders are infiltrative and not sharply demarked. The areas of density are wedge-shaped, with the apex pointing toward the hilus, and there may be either unilateral or bilateral involvement. The degree of density is marked but varies with the extent and duration of the disease. Until there is extensive involvement the process does not reach the periphery of the lung, so that small areas of air-filled lung tissue may be seen between the growth and the chest wall. The most frequent site of this type of lesion is in one of the lower lobes. There is always present a hazy shadow-zone surrounding the growth, due to congestion from active hyperemia or passive congestion due to mild pressure, or to both conditions. The roentgen shadows found in this type of carcinoma of the lung at times makes the diagnosis difficult. The roentgenogram will show the presence of a lesion in the lung, but if the neoplasm is in an early stage the areas of density may not be entirely typical of primary infiltrative malignancy. In such cases the roentgen diagnosis can be only tentative, and if the other findings are not sufficiently corroborative a subsequent roentgen examination should be made.

In the miliary type there are innumerable regular, irregular, or conglomerate small areas of increased density extending throughout all the lobes. Their borders are poorly defined and not sharply circumscribed from the surrounding parenchyma of the lung because of the marked infiltrating character of the neoplasm. The process is diffuse throughout both lungs and the areas of density are distributed as uniformly near the hilus as in the periphery of the lung. The shadows show no tendency to be arranged in groups or clusters. There are usually no true cavities but there may be localized dilatations of the smaller bronchi and bronchioles, the walls of which may be differentiated from cavity formation only by the stereoscope. Dilated bronchioles are recognized roentgenologically by the absence of any thickened wall.

The mixed type of primary carcinoma of the lung includes a combination of the infiltrative and the miliary forms. In this type are found poorly circumscribed, homogeneous, or slightly mottled areas of increased density in one or more parts of the lung, and multiple smaller areas of increased density simi-

lar to those found in the miliary type, diffusely studying the entire remaining portions of both lungs.

The writers conclude. 1. There are three main types of primary carcinoma of the lungs which present characteristic gross pathological appearances: the infiltrative, the miliary, and the mixed.

2. The roentgen examination and the stereoscopic study of roentgenograms will early point to a pulmonary lesion and its probable nature.

3. The areas of increased density found in primary pulmonary carcinoma are usually quite typical, and can be differentiated from areas of increased density caused by other diseases in the thorax, including inflammatory changes and neoplasms, both primary and metastatic.

4. A careful correlation of the roentgen findings with the clinical history and the physical and laboratory findings usually makes a clinical and differential diagnosis possible.

ERNEST T. F. RICHARDS.

RESULTS OF STUDIES ON EPIDEMIC POLIO-

MYELITIS: E. C. Rosenow (Am. Jour. Pub. Health, Vol. 7, No. 12), describes a coccus which he has isolated in cases of poliomyelitis from tonsils. He describes the coccus as of the strepto group and describes its cultural characteristics. He has recovered the same coccus experimentally from brain and cord of monkeys and by post-mortem examinations from patients who have died of poliomyelitis. In Rochester he examined seven cases of the disease and recovered his coccus. He found the same coccus in the experimental and post-mortem work done in New York during the epidemic there. (The number of New York cases as examined or posted is not given). No report is given of finding the same coccus in the throats of contacts or well children.

He describes his serum. Sixteen patients received serum before paralysis occurred and recovered. (It is not said how the diagnosis was made). Seventeen patients with slight paralysis received serum and recovered. In one the paralysis extended. Twenty-three with advanced paralysis were treated with serum. Ten died (18 per cent mortality rate). Seven were moribund and were not counted in the statistics leaving, leaving three where serum had a chance to act. In 23 untreated cases, nine died (35 per cent mortality rate).

In the epidemic in Davenport the same coccus was isolated from characteristic abscesses in tonsils. Experimental introduction into animals verified the identification by same reactions. He studied contacts here and found no evidence of contact infection. Few cases occurred of two in a family. Many inhabitants were studied and a large proportion harbored the infection, but only 1-1000 were attacked by the symptoms-complex of poliomyelitis.

Incidence of poliomyelitis in summer in a country is about the same as pneumonia in winter.

CHARLES E. SMITH, JR.

THE VALUE OF THE FACE MASK AND OTHER MEASURES In Prevention of Diphtheria, Meningitis, Pneumonia, etc.: George H. Weaver (Jour. Am. Med. Assoc., Vol. 70, No. 2), describes the methods in use at the Durand Hospital. All patients with any disease are treated on the same floors. First, isolation for two weeks on admission, then transferred to convalescence wards. The two weeks of isolation are sufficient to allow for the development of measles and those diseases with shorter incubation periods to people exposed before admission, but not enough for mumps and chickenpox. Routine cultures are taken on admission and just before transfer to the convalescent ward.

Nurses are impressed with the necessity for keeping hands, etc., clean. They wear gowns which correspond to the room they are entering. They leave the gowns, when exiting, in the vestibule of the rooms, inside out. They wear caps over their hair. Sterilization of bedding and clothing is done. Fumigation is abandoned. Antiseptics are not used. Secretions of naso-pharynx are destroyed.

Recently, masks of a double thickness of gauze are used constantly by the nurses on duty.

The infections among attendants have been few and crossed infections have been few.

The methods are recommended and emphasis is laid on remembering that the transfer of transmissible diseases occurs through the discharges from the naso-pharynx.

CHARLES E. SMITH, JR.

SYPHILIS OF THE NERVOUS SYTEM IN SOME OF ITS CLINICAL AND PATHOLOGICAL MANIFESTATIONS: Spiller, (Amer. Jour. Med. Sci., Vol. CLIV, No. 4), gives a very interesting discussion on syphilitic nervous lesions. Syphilitic ocular palsies are not primarily nuclear, but are due to involvement of the nerve fibers as they leave the brain. Tabetic ocular palsies frequently clear up under anti-luetic treatment even when of long standing, in Posey's series in at least 90 per cent. of his cases. However, there is a tendency to recurrence either involving the same muscle or another muscle supplied by the same nerve. On account of the favorable prognosis, ophthalmologic operations on the eye muscles of tabetics should not be advised.

The cause of optic atrophy (luetic), according to Stargardt, is an exudative process in the chiasm and the intracranial portion of the optic nerves. The changes in the optic nerves resemble those in the nerves supplying the ocular muscles. Lesions in syphilis of the brain are most frequently found in the neighborhood of the cerebral peduncles and the optic chiasm. The author reports cases of complete bilateral isolated paralysis of the seventh and also of the fifth nerve due to syphilis, with complete recovery.

Hydrocephalus may develop and may involve only one horn of a lateral ventricle due to a proliferation

of the ependyma. It is interesting to note the association of syphilis with other organic lesions of the central nervous system. The author reports a case, correctly diagnosed and confirmed at autopsy, of syringomyelia associated with tabes. In all suspected congenital luetics, it is most important to do intensive family study. This may aid in the diagnosis of some of the cases of epilepsy of chronic invalidism, etc. Although syphilis usually involves the brain and spinal cord conjointly, attention is called to the occurrence of focal syphilis of the central nervous system, in which the lesion is confined to a very limited area.

E. M. HAMMES.

HEAT STROKE: REPORT OF ONE HUNDRED AND FIFTY-EIGHT CASES FROM COOK COUNTY HOSPITAL, CHICAGO:

Gauss and Meyer, (Amer. Jour. Med. Sci., Vol. CLIV, No. 4), summarize their studies of 158 patients suffering from sunstroke and heat exhaustion during July, 1916. From July 26th to July 31st inclusive, the temperature was continually above 82 degrees, which was the highest since the Chicago records have been kept. Of the 158 patients admitted to the Cook County Hospital, there occurred 70 deaths, making a mortality of 44.3 per cent. There were 152 males and 6 females, and 116 or 80 per cent. were between the ages of 30 and 60 years; the youngest was 19 years old and the oldest case 79. All but two patients had taken alcohol in some form and variable amounts in the 24 hours preceding the attack.

Postmortem examination showed edema of the leptomeninges, brain and lungs, cloudy swelling of the myocardium, liver and kidney, fatty changes in the liver, petechial hemorrhages in the brain, viscera and skin.

Headache and dizziness were the commonest prodromal symptoms. The temperature on admittance varied from 94 to 114 degrees. The pulse rate was roughly proportional to the temperature. The time that it required the hyperpyrexial patients to return to normal varied from 10 minutes to three days. The urine frequently showed albumen and casts. There usually was a mild leucocytosis. One hundred and twenty-nine patients were comatose when admitted; 10 were stuporous; 3 delirious and 16 conscious and rational; 58 died without regaining consciousness; 33 patients had generalized convulsions. Marked disturbance of speech was frequent. All patients with a temperature of 103 degrees or over were immersed in a tub of tap water, and ice was freely added to the water. Vigorous friction was applied to the entire body. The temperature rapidly dropped to 102 degrees within 10 to 30 minutes, after which the patient was removed from the tub. The usual symptomatic drugs were also given.

E. M. HAMMES.

VINCENT'S ANGINA AMONG THE TROOPS IN FRANCE: Bouty (Brit. Med. Jour. No. 2969, Nov. 24, 1917), states that during the last two years there has been an increase in the number of cases of Vincent's angina among the troops in France including both British and French. Recent statistics have shown that this disease forms almost 2 or 3 per cent of all throat complaints among the French army during times of peace. Statistics obtained recently from a British military hospital in France shows the proportion to be as high as 23 per cent.

Captain Bouty has made the following notes upon cases that came under his observation:

Symptoms.

The disease is characterized by the formation of ulcers on the buccal and pharyngeal mucous membrane, either superficial or deep, covered by a pseudo-membrane the most common site being the tonsil. The organism is normally present in the mouth of the healthy individual, but its pathogenesis is favored by irritative conditions such as smoke, irritating fumes from bursting shells, and the vitiated air of the dissecting room.

The onset is sudden, but may be preceded by a few days' malaise. The temperature is raised the first day or two and may be high, the membrane forming in the course of 24 to 48 hours following the rise of temperature. After the first two days the temperature returns to normal and remains normal excepting for a slight irregular pyrexia throughout.

The membrane is yellowish-white and abundant, is adherent and leaves a raw, bleeding surface upon removal. Although the tonsil is generally the part affected, the ulcer may be found on the anterior or posterior pillar of the fauces, or the uvula or soft palate alone. It may commence on the tonsil and spread to the uvula, pharyngeal wall or soft palate, causing considerable destruction of tissue. The breath has an odor worse in its unpleasantness than diphtheria. A chronic or severe case may persist for weeks and present complications so severe that deaths have occurred in French hospitals, the primary cause being Vincent's angina.

Etiology.

This disease may present two clinical forms: (1) the pseudo-membranous type showing bacteriologically abundant bacilli mixed with cocci; and (2) the ulcerative form associated with the presence of bacilli and Gram-negative motile flagellated spirillum. A co-existing streptococcal infection is not uncommon and may give rise to serious complications. Letulle states that in every case of ulceration of the mouth, whether syphilitic, tuberculous, or cancerous, large numbers of bacilli fusiformis and Vincent's spirochetes are to be found.

Complications.

Adenitis of the cervical glands is present in nearly every case and is often very painful. The urine of these patients often contains a trace of albumin, and in some cases acute nephritis may be present.

Gastro-enteritis cases have occurred, in which post-mortem, abundant bacilli and spirochetes have been found in the intestines.

Other complications, such as ulceration of the pharynx causing perforation of the carotid artery, bronchitis, laryngitis, ulceration of the vocal cords, pleurisy, empyema, otitis media and endocarditis may occur.

Treatment.

Vincent finds that a thorough painting with a 6 per cent tincture of iodine solution, after well scrubbing with a tampon to remove the exudate to be most efficacious. The Wassermann reaction in Vincent's angina is negative and Vincent states that mercurial treatment in a non-syphilitic exaggerates the condition.

PAUL D. BERRISFORD.

BOOK REVIEWS

TECHNIC OF THE CARREL METHOD. (By J. DUMAS and ANNE CARREL. With an Introduction by W. W. KEEN, M. D., LL. D., F. R. C. S. (Hon.). Published by Paul B. Hoeber, New York. Price \$1.25.)

This small volume meets the present demand for a brief and simple guide in the application of this antiseptic treatment of infected wounds. The apparatus is described and the rather difficult preparation of Dakin's solution is given in detail. The method of roughly determining the degree of wound infection by means of stained smears is briefly outlined. The volume should have a large demand as a reference book.

C. B. DRAKE.

A TEXT-BOOK OF GENERAL BACTERIOLOGY. (By EDWIN O. JORDAN, Ph. D., Professor of Bacteriology in the University of Chicago and in Rush Medical College. Fifth Edition, Thoroughly Revised. Published by W. B. Saunders Company, Philadelphia and London, 1916. Price, \$3.25.)

This edition maintains its usual standard, bringing the subject matter up to date. The arrangement serves well for reference to the general practitioner as well as to the student of bacteriology.

A. LEITCH.

A COMPEND ON BACTERIOLOGY Including Pathogenic Protozoa. (By ROBERT L. PITFIELD, M. D., Pathologist to the Germantown Hospital; Late Demonstrator of Bacteriology at the Medico-Chirurgical College, Philadelphia; Visiting Physician to St. Timothy's Hospital and Chestnut Hill Hospital, Philadelphia. Third Edition with 4 plates and 82 other illustrations. Published by P. Blakiston's Son and Company, Philadelphia, 1917. Price \$1.25.)

This compend brings the subject up to date and puts a lot of information in compact form. The small size of the volume makes it particularly handy for transportation. This type of book supplies a definite demand.

CARL B. DRAKE.